REMARKS

Disposition of Claims

Upon entry of the amendments herein, claims 33 and 35-44 will remain pending in the application and stand ready for further action on the merits. Claims 32 and 45-62 have been withdrawn from consideration in response to a restriction requirement made earlier by the Examiner. Claim 34 has been canceled herein without prejudice or disclaimer of the subject matter contained therein. Claim 40 has been amended to correct a typographical error. Independent claims 33 and 43 have been amended to clarify that substantially no compaction or sintering of the polymer material occurs prior to spinning of the material. These amendments are fully supported by the specification particularly at page 4, lines 6-10; page 10, lines 20-22; FIG. 1; and originally filed claim 3. No new matter has been added to the specification.

Rejection of Claims 33-44 Under 35 U.S.C. §103(a)

The Office Action states that claims 33-44 are rejected under 35 U.S.C.§103(a) as being unpatentable over "Complete Textile Glossary," Celanese Acetate, LLC, 2001 (hereinafter referred to as "Complete Textile Glossary") in view of Pickles, A.P. et al., "The Effects Of Powder Morphology On The Processing Of Auxetic Polypropylene," Polymer Engineering and Science, Vol. 36, No. 5 (March, 1996) (hereinafter referred to as "The Effects Of Powder Morphology") and "A Stretch Of The Imagination," New Scientist, Vol. 154, No. 2085 (June, 1997) (hereinafter referred to as "A Stretch Of The Imagination").

It is submitted that the present invention, as recited in amended claims 33-44, is not prima facie obvious over "Complete Textile Glossary" in view of "The Effects Of Powder Morphology" and "A Stretch Of The Imagination" references for the reasons discussed below.

The "Complete Textile Glossary" reference defines a conventional method for manufacturing polypropylene fiber. As the Examiner recognizes, the "Complete Textile Glossary" does not disclose making polypropylene fiber from a heated thermoformable

particulate polymer material, wherein cohesion and extrusion are effected during spinning to produce filamentary material having auxetic properties.

Turning to the secondary reference, "The Effects Of Powder Morphology," Applicants agree with the Examiner that this reference generally discloses that certain grades of polypropylene powder can be processed into polypropylene extrudates having auxetic properties. The polypropylene powder is finely divided and has an average particle size of less than 300 μm and a rough surface (page 642, paragraph 5).

But, "The Effects of Powder Morphology" reference teaches that the processing of the polypropylene powder into extrudates involves three distinct stages: compaction of polymer powder, sintering, and extrusion (page 637, paragraph 5). These three separate and distinct steps are performed using the processing rig shown in FIG. 1 of the reference. More particularly, the polypropylene powder is poured into a barrel and pressure is maintained for twenty minutes to produce a contiguous rod of material. The material is allowed to cool and then is removed from the barrel. Subsequently, the compacted rod is sintered at 160°C for 20 minutes and extruded at 500 mm/min. through a conical die. (page 637, paragraphs 5-6).

The Examiner takes the position that it would have been obvious to modify the fiber-spinning process described in the "Complete Textile Glossary" reference so that it includes the steps in the "The Effects of Powder Morphology" reference.

Applicant, however, respectfully submits that even if the teachings in the "Complete Textile Glossary" and "The Effects of Powder Morphology" references were combined, the presently claimed invention would not be obvious to a person of ordinary skill in the art.

Applicants have found a method for making filamentary auxetic material by extruding polymer particulate that coheres together during extrusion. Moreover, the compaction and sintering of the polymer material occurs during spinning (extrusion) of the material. There is no substantial compaction or sintering of the polymer material prior to extrusion as explained at page 4, lines 6-9. Rather, the polymer particles are compacted and adhere to each other as the material is extruded through the die as described at page 9, lines 5-6. Accordingly, independent claims 33 and 43 have been

amended to recite that there is substantially no compaction or sintering of the polymer material prior to spinning of the material.

A person of ordinary skill in the art looking at the teachings in the "Complete Textile Glossary" and "The Effects of Powder Morphology" references would have no basis for making the presently claimed invention. As discussed above, "The Effects of Powder Morphology" reference teaches a completely different process, wherein the polymer powder is compacted and sintered *prior* to extrusion.

> The initial stage of the processing route was compaction of the polymer powder to produce rods that could be subsequently handled in the sintering and extrusion phases.
> (page 638, paragraph 4).

The "Complete Textile Glossary" reference also teaches a different process, wherein molten polypropylene is prepared first and then melt-spun to produce fibers. In contrast, the powdered polymeric particles in Applicants' process are sintered together at a temperature that allows for some surface-melting but no bulk-melting as described at page 12, lines 12-16.

As far as the "A Stretch Of The Imagination" reference is concerned, Applicants recognize that this reference discloses that certain auxetic materials are known and that auxetic fibres would be desirable because of their elongation properties, but there is clearly no disclosure or suggestion in this reference for making auxetic filamentary material as presently claimed. "A Stretch Of The Imagination" merely suggests the problem that needs to be solved, i.e., how to make auxetic filamentary material.

There clearly is no teaching or even a hint for spinning polymer particulate to produce auxetic material, with substantially no compaction or sintering of the polymer material occurring prior to spinning of the material, in the combined disclosures of the "Complete Textile Glossary," "The Effects of Powder Morphology," and "A Stretch Of The Imagination" references. In view of the teachings in these references, a person of ordinary skill in the art could only construct Applicants' invention in hindsight based on Applicants' own specification and such a construction is impermissible.

Accordingly, it respectfully is requested that the rejection of claims 33-44 (as amended) under 35 U.S.C.§103(a) be withdrawn.

Conclusion

In summary, Applicants submit that all of the claims presented for consideration herein are patentable and each of the Examiner's rejections and objections has been overcome. Accordingly, Applicants respectfully request favorable consideration and allowance of claims 33-44 (as amended).

The Commissioner is hereby authorized to charge any additional fee required in connection with the filing of this paper or credit any overpayment to Deposit Account 02-0900.

Should there be any outstanding matter that needs to be resolved in the present application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,
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